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MINIMUM ESSENTIALS IN ELEMENTARY GEOGRAPHY

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PROFESSOR Dewey has said that geography and history are the two bodies of intellectual material that most fully reveal the life of society as a whole; that the aim in developing a topic in geography should be to picture life responses and to cultivate in the pupil that attitude of mind in which he is on the alert for geographical causes.

Professor Salisbury, of Chicago, has said that "geography is an interpretation of the earth's surface and climate and the relations of life to them," that geography is best adapted to preparation for life in general because it deals with common things,—land, water, air, plants, animals and human beings,—with the every day facts of life.

The primary object of geography is not teaching geography but teaching the pupil. This education consists of the ability to think and talk straight, to say just what one means. Geographic study should develop in the pupil a sympathetic appreciation of the surroundings in which he lives, give him power to interpret his environment in an elementary but fundamental way.

In the presentation of a lesson, understanding should precede memorizing. The out-of-doors is an excellent place to study. Lead the pupil to see the things around him. Whenever possible let our study be first hand. Give problems. It will be more difficult to cover the work laid down in the course of study but much of that isn't important, anyway. The older pupils ought to be given problems to solve rather than facts to learn. This gives them the delight of finding out things for themselves—the consciousness of the power of connected thinking.

The Detroit Course of Study states that in the study of geography there are two things to understand,—maps and the relations between natural controls and life; and that in the school room this study is carried on by drilling, by gathering material

on topics, and by solving problems. In order to accomplish this end the pupil should,—

1. visualize maps and locate the points listed under "Minimum Essentials"
2. gather geographical material
3. organize geographical material
4. acquire general information
5. discover problems
6. solve problems
7. study pictures
8. read books of travel and articles in magazines and geographical material in newspapers
9. observe geographical phenomena in the neighborhood
10. cooperate with others by making reports to the class or by serving on committees to investigate and report.

The Detroit committee holds that the study of cause and effect is the heart of the study of geography, but that many facts must be learned whose causal relations to environment are not fully understood.

The Indianapolis course gives the following aims for geography teaching:

"1. To give the child a definite knowledge of the location and character of certain important places or regions on the surface of the earth,—information which every intelligent person should have at his command.

2. To lead the child to see that the earth is adapted to man's habitation and therefore fitted by a wise Creator to be man's home.

3. To show the interdependence of man."

This course further states that "to attain the foregoing objects it is necessary to cultivate the child's powers of observation, reason and imagination. Geography, then, is not only a description of the earth's surface but a study of the people who inhabit it, and their life as affected by physical environment. The study should possess a human interest, showing the earth as the home of mankind and its adaptation to man's activities. The work in the primary grades should stress training in observation; in the fourth and fifth grades should reach beyond the immediate environment and be made vivid, developing the imagination; and in the sixth, seventh, and eighth grades the child should be ready to do independent thinking, basing his reasoning upon his knowledge of facts learned."

Geography should teach the present, not the past, and aid in the proper adjustment of the pupil to his surroundings and life.

What we need most is the proper geographical spirit rather than a fixed method. It is frequently said that the difficulty in geography teaching arises from the fact that many teachers do not know geography—that geography classes are often left to the one who has nothing else to do. Geography is a professional subject and requires professionally trained teachers.

The Call for a List of Minimum Essentials

In this time of standardization, measurement, and efficiency tests, it behooves us to see where we are and ought to be, and whither we are going. Out of the demand for definite, fundamental results, and for ability to measure up to present day standards, has come the demand for the adoption of minimum essentials.

Minimum essentials, as I understand the term, are a set of fundamental geographic facts which are necessary to the child's future progress in geography and essential to intelligent citizenship.

A list of minimum essentials is in no particular a course of study and should not be considered as such. It is not a method of procedure nor a syllabus of underlying principles. Neither is it a summary of the aims of geographic teaching with their application to a course of study. A list of minimum essentials is a group of fundamental, elementary facts essential to the child in his relation to the world with which he has to do. The best summary of essentials of which I know is included in an article in the Journal of Geography, Vol. 4, 1905, by Mr. R. H. Whitbeck. It is as follows:

"Given an unlettered map of the United States, on which the states are outlined, our grammar school graduate ought to be able to write the names of the states in their proper places. He ought to be able to do as much for the important divisions of South America, Europe, Asia, and Africa.

"He should know the approximate location of the eight or ten best known rivers of the Mississippi system; three or four of the Pacific rivers; and two or three of Canada; the three great river systems of South America, four or five of Africa, a half dozen of Asia, two or three of the British Isles, of France, of Germany, and of Russia; also the Po and Danube. He should, of course, know the rivers of the region in which he lives.

"He should know the location of such arms of the ocean as are highways of the world's great commercial movements.

"He should know the location of those islands and groups of islands that are real factors in the world's activities, or have a great historical interest.

"He should know the facts of position, direction of trend, etc., of the half dozen most important mountain systems or mountain groups of North America; the Andes, Apennines, Pyrenees, Caucasus, Ural, Himalaya, and Altai; the location of a few of the most frequently mentioned peaks, such as Mt. Blanc and Mt. Everest.

"There are a few capes that are often mentioned, such as Horn, and Good Hope, and their location is worth knowing.

"He ought to know something of the location of the chief colonies of Great Britain, France, Germany, Holland and the United States.

"He ought to know something of the location of some twenty-five of the chief cities of the United States, what those cities stand for in our industrial and commercial life, and the advantages of their situation. There are twenty or thirty foreign cities whose location should be definitely known, and also something of what these cities stand for. In addition to these there are fifty or more cities at home and abroad whose names ought to be familiar to the pupil. It is sufficient to know in what state or nation these are located."

The Detroit Course of Study in Geography of September, 1915, gives for grades 3 to 6 inclusive minimum essentials in location which include practically the same material as that given by Mr. Whitbeck, referred to above.

The list made out last spring by a committee of the Minneapolis Geographic Society covers practically the same work as the Detroit Course but includes causal and problem work in the seventh grade. We have found, however, that it needs revision, being in places neither elementary nor fundamental.

Locational Geography

Many criticisms have been made regarding the emphasis placed on the study of location. Mr. G. J. Miller said at a Round Table Conference of the M. E. A. in 1914, "Much of our geography is still place geography. I do not mean to imply that place geography is unimportant. It probably constitutes a very large proportion of the material that the student will use in after life and is therefore of vital importance."

If we could have a complete understanding of what location should include, perhaps this would aid in eliminating the objections to it. Location means far more than finding a place on a political map. Location is largely a matter of physical geography,—a response to certain physical conditions,—therefore let us use physical maps and consider locational relations of rainfall, winds, and heat belts as well as of latitude and longitude, and always show the relation to the home land. Location should include the ability to state accurately these relations. Above all let us not neglect to establish in the mind of every pupil a definite sense of direction.

Value of Drill

Let us not speak of drill in low tones. Drill is essential and all our work would show greater efficiency if we drilled on essentials more conscientiously. The necessity for drill in the location of places of common interest is as essential as drill on the fundamentals in Arithmetic. The past summer I heard a university student locate Saskatchewan in Asia. Another student who had visited Havana knew it is located on the south coast of Cuba. How often we hear complaints from business men that our school graduates do not know the locations of the

most important cities of the United States and cannot find a city address when directed. Should not these complaints be considered in the adoption of minimum essentials?

The shortening of the time given to geography in elementary schools has led to the necessity for definite, fundamental, concise work—something which will give the best education possible in the limited time. A general movement in all branches of education toward a standard of measurement of efficiency has also led to this demand. The consciousness of the failure of our work to meet the needs of everyday life has awakened us to the need for revision. Our work must be made more constructive and fundamental through careful selection and elimination.

Needs of the Present

Many difficulties are met with in attempting to establish and use effectively a set of minimum essentials. Much time and thought are required in the selection of such a list. To do the work, a number of people who are thoroughly familiar with all phases of elementary geography and who are willing to give abundance of time and study to it is necessary.

It is essential to have school officials who will aid in the selection of thoroughly competent teachers to form a committee to aid in keeping us in touch with the most advanced geographic thought and to change the course of study and the essentials to meet the changing requirements of the times. There must be by all concerned a thorough understanding of the relation between minimum essentials and the course of study.

There must be adequate material for carrying out the plans made. Prof. Bobbitt, of Chicago, in his report on the Cleveland Survey says, "In our teaching of geography everywhere it must become more humanized and socialized and should be given much more time in the last two grammar grades. It must consist of stimulating and guiding children toward intelligent inquisitiveness and inquiring interest as to the world, the skies above and waters round about and the conditions of nature that limit and shape the development of mankind. As in reading, so in geography, right development of the course of study must depend in large measure upon the material equipment that is at the same time provided. It sounds like legitimate evasion to say that education is a spiritual process, and that good teachers and willing, obedient and industrious pupils are about all that is required. As a matter of fact, just as modern business has found it necessary to install one-hundred-dollar typewriters to take the place of the penny quill pens, so must education, to be effective, develop and employ the elaborate tools needed by new and com-

plex modern conditions, and set aside the tools that were adequate in a simpler age. The proper teaching of geography requires an abundance of reading materials of the type that will permit pupils to enter vividly into the varied experiences of all classes of people in all parts of the world. The schools need ten times as much geographical reading as that now found in the best equipped school."

There should be a careful study and selection of texts and maps. The lack of adequate and dependable maps in our school geographies has been a handicap to the best geographic instruction. Fortunately some really excellent texts and maps, reliable and scientific, are becoming available. Our task is to get a voice in the selection of texts and maps, and let us call to our aid in this selection the people who know. When we get a good map let us use it,—teaching its use, interpretation, and accurate reading.

Another stumbling block in our work has been the so-called part geographies. Why any public school in this great country should be required to use a text which does not contain a map of North America and United States is beyond my comprehension. What is our basis of comparison to be without our home land? Pupils may be able to visualize quite accurately a map of United States, but not sufficiently well to serve as a basis for comparison in all work. When we are studying the British Empire, these part books do not contain a map of Canada or any text work on it. Economy! Yes, but of what and to what end? We must have complete texts if we are to teach problems and responses. No part of the world today which is worth studying at all, is so isolated as to be studied apart from the rest. If we must economize and use these part books let us at least insist upon a complete set of maps of the continents and of the United States in every text.

How shall we drill upon essentials in location without maps in our texts or up-to-date wall maps? We are given political maps whose divisions are constantly changing. Let us ask for physical wall maps. Diastrophism and erosion have not and will not change the surface features sufficiently in fifty years to make these maps out of date. Vegetation, climatic, and rainfall maps will not change greatly in a period of twelve or fifteen years. Industrial and commercial maps will necessarily change somewhat more.

Fortunately our current magazines, especially the National Geographic, and the railroad companies furnish us with up-to-date maps free or at a nominal price and the Government will supply us with excellent maps of the United States at small cost.

Conclusion

Whatever we teach or don't teach, whether location, cause or effect, let us attempt at least to give a fair and honest understanding of the countries studied; show something about what each country contributes to the rest. If the countries of Europe had really understood each other perhaps the present war need not have been. Let us learn to be considerate of each other's wants,—to develop an understanding of the tastes, needs, industries and prejudices of each people in order to be sympathetic and helpful.

And above all let us remember that a study of our own history and country leads to good citizenship—to an ambition for things that are right and to an appreciation and love of our own United States.

THE WOOD PULP INDUSTRY

By C. T. Anderson
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PAPER for magazines, periodicals, newspapers, wrapping purposes, and numerous other things, is one of the most widely used articles in civilized countries; of these the United States is the greatest consumer. Since many plants contain fibres, the fibre used for paper-making is in a large measure determined by its relative quality and cheapness. In the early stages of the development of paper-manufacturing, rags were used, and the mills gathered around the centers of population. A little later the fibre of a grass known as *esparto* was found to be suitable for paper. The grass flourishes on sandy soil in semi-arid regions; northern Africa and Spain had a large export trade in this grass. But still later wood pulp was introduced. Because the large areas of forest in nearly every country made the wood fibre relatively cheap, paper made from wood pulp increased rapidly and in 1901 far exceeded all other kinds combined. With the change from rags and *esparto* to wood fibre, factories have ceased to be built in the cities, and are now mostly located near the wood supplies. At the present time, according to the latest census report available, over 60% of the waterpower utilized in the United States is used in paper mills, so close is the relationship between pulp manufacture and waterpower.

Suitable Woods for Paper Pulp

Although at first the spruce was the only wood used for the manufacture of pulp, twenty varieties are now used. The woods

classified and arranged according to their relative consumption, are: spruce, hemlock, poplar, balsam fir, pine, beech, maple, white fir, cottonwood, chestnut, douglas fir, tamarack, elm, basswood, birch, ash, and cucumber. The latest wood to be added to this list has been recently discovered by a Swedish expert in the Argentine. The name of this species is the *Araucaria Imbricala;* it covers over 2,470,000 acres in the one district of Neuquen; it is reported to be more suitable for pulp than any of the woods now used in either America or Europe.

The Areas of Production

The United States is not only the largest consumer of paper, but it is also the greatest manufacturer of wood pulp. Despite the fact that large quantities of timber have been cut from the forests, the United States still has the greatest forest reserve in the world, including nearly all of the woods suitable for pulp manufacturing. The trees which are too small for timber make excellent pulpwood, so that the entire supply may be utilized. The Lake States, including Wisconsin, Minnesota, and Michigan, have extensive areas of hemlock, balsam fir, maple, chestnut, poplar, jack pine, tamarack, and ash. At the present time very little is imported by these states from Canada. The Eastern States, including the New England States, New York, and Pennsylvania, also have large supplies of spruce, poplar, pine, balsam fir, and hemlock. All of the pulp wood imported into the United States comes from Canada; imported spruce and poplar together forming 23.1% of the total consumed in 1910, and in 1911 imported wood formed 21.7% of the total. In 1914 the United States imported from Canada 972,508 cords valued at $6,680,490. The Western states have the red fir, and balsam with fibre similar to that of the poplar, making the reduction to pulp by the soda process very easy. The Southern States also have suitable pulp woods, but like the Western States they have not yet developed the pulp industry. Alaska has also large areas of suitable pulp woods, but the lack of transportation facilities hinders their exploitation.

Canada has another large forest reserve of 153,000,000 acres. The provinces of Quebec, Ontario, New Brunswick, and Nova Scotia contain large tracts of spruce, poplar, balsam fir, beech and other woods not suitable for timber, but excellent for pulp wood. Quebec has 107,997,513 acres of forest, Ontario has 14,430,720 acres, Saskatchewan has 16,813,376 acres, and British Columbia has 172,140,000 acres. Because the Canadian woods are suitable for pulp, Canada can be depended upon to furnish pulp wood for hundreds of years.

Norway and Sweden with their rugged topography, and with their poor soil are almost dependent upon their forest and fishing industries. 24.4% of the total area of Norway and 50.9% of the total area of Sweden or about 50,000,000 acres are covered with forests. These two countries together with Russia and Germany are the chief sources of pulp wood in Europe. The people of Norway and Sweden realizing that their future prosperity depends in a large degree upon their forest and fishing industries have sent experts to the United States to find trees which are suited to that peculiar climate, in order that the now barren areas may be utilized.

Russia alone has 550,000,000 acres of forest land. Of course, this reserve is not all suitable for timber, but practically all of it can supply pulp wood. Finland has 49,000,000 acres of Norway pine, spruce, fir, and birch, most of which is exported in the raw state.

The forests of Germany are regulated by the government. 700,000 acres or one third of the 25% forest area in Germany is owned by the Crown; one sixth is owned by communities; one half by private owners, and the remainder by associations. By careful scientific forestry Germany produces nearly all the wood she needs for the manufacture of paper. The wood she imports comes from Norway and Finland. Even if the timber supply is rapidly decreasing in all countries, the supplies of wood which can be utilized in pulp manufacture seem inexhaustible because almost every tree large or small can be used.

The Consumption of Pulp Wood

Wood for the manufacture of pulp is received at the mill either rough, peeled, or rossed. Rossing is done by machinery; peeling is done by hand. A cord of rossed or peeled wood produces more pulp than a cord of rough wood, since the bark, which is of no value for pulp, forms an important part of the volume of the latter. The rough wood costs the least per cord, the peeled wood next, and the rossed wood costs the most.

The cost of domestic and imported spruce is causing manufacturers to use other woods. The domestic production of hemlock, 616,665 cords in 1911, formed 14.2% of the total. The poplar forms 8.5% of the total. The percentage used of the other woods, such as the balsam, fir, beech, pine, ash, elm, basswood, tamarack, cherry, and birch which were still of minor importance as pulp woods in 1910 when they formed only 18.3% of total consumption, but their use is steadily increasing as the present spruce and poplar become high-priced woods. In 1911 they formed nearly 20% of the total amount consumed.

Consumption by the Various Processes of Manufacture

The mechanical process of reduction is simply the grinding of the fibres until they are microscopic in size; the fibres are then floated in water to form a smooth layer of fibre, the pores of which are not tightly closed. Our newspapers are made from wood reduced by the mechanical process. In the sulphite and soda processes of reduction, the fibres are treated with chemicals which first loosen the fibres and then, with the addition of a sizing, binds them together firmly forming the better grades of paper. In 1911 2,342,550 cords or 54% of the total consumed were reduced by the sulphite process, 15% by the soda process, and over 30% by the mechanical process. Spruce is nearly all reduced by the mechanical process; hemlock by the sulphite process, and poplar, pine, beech, maple, and all other species by the soda process. The soda process is likely to become the most important because the great majority of the woods can be reduced by that process.

Pulp Production in the United States

The average cost of wood for 1909 was $8.62, 24c more than the average cost in 1908, and 45c more than in 1907. The average cost depends upon the nearness to the supply, the condition in which the wood is received, and the kind of wood used, spruce being the most expensive. The total quantity of pulp produced in the United States for 1911 was 2,686,134 tons of 2,000 pounds each. The average yield of pulp reported without distinction as to the kind of wood or the process employed is about 1240 pounds per cord of wood. The yield per cord is approximately 2,000 pounds for the mechanical or ground wood process, and 1,000 pounds by the sulphite and soda processes.

Consumption of Pulp Wood and the Pulp Production of Canada

The woods used in Canada are mainly spruce and poplar, and some balsam fir in which the eastern provinces abound. Since 1910 the consumption of wood has rapidly increased. In 1914 there was an increased consumption of 104% over that of 1910. In 1914 66 mills consumed pulp wood valued at over $8,000,000. The Canadian government is stimulating the pulp industry by putting an export tax on wood shipped to the United States, and by giving a bonus to her manufacturers, thus decreasing the export of raw material, and also decreasing the import of finished product. Most of Canada's pulp wood is reduced by the mechanical process although the sulphite process is employed.

The Industry in European Countries

In Norway and Sweden the woods used are spruce, balsam, beech, and pine. The process of reduction is either the sulphite or the soda process depending upon the wood used. The Scandinavian countries normally export most of the unbleached pulp and the bleached pulp imported into the United States. The utilization of hydroelectric power for the manufacture of bleached and unbleached pulp ranks Norway and Sweden first in the export of these items which go chiefly to the European countries. Norway exported pulp to the United States valued at $5,000,000 in 1914, $2,888,000 in 1915. Sweden exported pulp valued at $5,140,000 in 1915.

Russia is mainly an exporter of raw material, chiefly in times of peace, to Germany, England, and Belgium. She imports most of her finished product from Norway and Germany.

Germany does not manufacture a large quantity of paper but she manufactures the better grades of paper, such as fine writing paper, and photographic prints which require more labor and scientific applications to manufacture. At the present time we are feeling the effects of the war upon our supply of photographic prints, the price of which has risen rapidly since the beginning of the war.

Some Substitutes for Pulp Wood for Future Use

Although wood is now the principal article used for the manufacture of paper, and although the present prices of wood for pulp cannot be complained of, yet paper makers are looking into the future to determine substitutes for wood. Because of the successful experiments of the British experts in the forests of China, bamboo now appears to be the most promising substitute for wood. One acre of land will produce about 5 tons of bamboo fibre which, on a commercial basis, will yield about 45% of pulp. Because bamboo grows so rapidly, a mill consuming 300 tons per week or 35,000 to 36,000 tons per year can easily be served from a grove only 4 miles wide and 5 miles long.

With the introduction of the Minch and De Segundo machines into the United States, Germany, France, and Brazil, the cotton hull fibre can be made suitable for paper-making. To obtain the first rights and patents on the product The American Cotton Hull Company has recently been incorporated.

The United Fruit Company has established a mill on one of its estates to demonstrate the use of *bagasse*, the name applied to the substance which remains after the juice has been pressed out of the sugar cane. So far all the tests which have been

made with the McMullen extracting process have been successful and the United Fruit Company is giving the crop considerable attention. In mill practice *bagasse* gives a 45% air-dry unbleached cellulose or pulp.

With the use of special machinery, Mr. G. R. Sherwood, Washington, D. C., has found a method whereby cornstalks can be made suitable for paper making; the process has not yet been commercially developed.

If the weather conditions could be depended upon, and if supply would warrant the use of the necessary machinery, flax straw or fibre is perhaps one of the best substitutes for wood fibre. As the weather conditions cannot be depended upon, a crop of only 10% bleached fibre can be counted on as an annual yield.

There are other plants that have been experimented with and which might furnish fibre for paper-making should the necessity arise. Some of these are: kaffir corn, sorghum, cocoanut tree, and certain grasses.

The United States under normal conditions holds third rank among the nations as an exporter of manufactures, and second rank as an exporter of domestic products of all kinds.

Exports of Manufactures in 1892 and 1912:

	1892 Dollars	1912 Dollars	% of Increase
United States	183,100,000	1,020,400,000	511.9
United Kingdom	827,000,000	1,873,603,000	126.5
Germany	463,862,000	1,430,142,000	208.3
France	362,608,000	756,155,000	108.5
Austria-Hungary	171,941,000	359,813,000	109.9
Belgium	No data	284,772,000	.....
Switzerland	95,091,000	194,969,000	105.0
Netherlands	113,440,000	253,320,000	123.3
Russia	10,918,000	39,810,000	263.7
Italy	94,165,000	255,377,000	171.2
Spain	No data	50,470,000	.....
Japan	No data	209,568,000	.....
Canada	7,000,000	35,800,000	411.4
Total of ten countries	2,329,100,000	6,219,400,000	167.1

Our total exports in 1916 were about 5½ billion dollars, an advance of 60% over 1915 and three times those of 1912.

AN INSTANCE OF THE CHANGING VALUE OF GEOGRAPHICAL LOCATION

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THERE are two distinct types of geographical location—physical, or physiographical; and vicinal.* By physiographical location is meant position on the earth's surface with respect to such physical factors as altitude, land forms, streams or water bodies, latitude, and climate. By vicinal location is meant position with respect to the various elements of the human environment such as centers of population and culture, markets, or neighboring social groups. Of these the values of the elements of physical environment are essentially fixed or change so slowly that the change can scarcely be noticed. Those of the human environment, on the other hand, since they involve mobile living organisms, are constantly changing as means of transportation and industries vary, and as centers of population and culture shift in the course of time.

Examples of the changed value of vicinal location, such as that of the British Isles in Roman as compared with modern times, have repeatedly been pointed out. A clear example, on a smaller scale, of such a change has been observed in the Catskill Mountains of New York State. The change has affected a considerable portion of the mountain region, but for the sake of definiteness, conditions in only a limited area, namely that of the Hobart Quadrangle at the head of Delaware River, are here described.

The topography of the Hobart Quadrangle is that of a plateau dissected by streams to a stage of late maturity, with a relief of a thousand to fifteen hundred feet. The valleys near the streams are broad and their flood plains and lower slopes are suitable for farming. The higher slopes are too steep for successful cultivation, but are suitable for pasture and forest. The valley bottoms and lower slopes are mainly cleared and cultivated, the lower steeper slopes are in pasture, and the upper slopes and mountain tops are forested. The region is admirably adapted to the dairying industry which is, and from the time of the earliest settlements has always been, the dominant form of agriculture. The plentiful rainfall of the mountains, the compact glacial till which floors the valleys, and the numerous springs which issue from the porous sandstone rocks combine to favor the growth of grass, making most excellent pasture and meadow land.

* Semple, E. C., Influences of Geographic Environment, pp. 132-137.

The center of the quadrangle is about eighty miles distant by rail from Kingston on Hudson River, and about one hundred and eighty miles from New York City. By road the distance to Catskill, the nearest point on Hudson River, is fifty-five miles.

Before the building of the railroad in the decades from 1870 to 1890, the principal outlet for the region was overland to Catskill. Then, as now, the prevailing industry was dairying and the marketable product was butter. The dairymen were, of necessity, dependent on local resources of hay and grain for cattle feed. The greatest milk production was sought during the summer when the fresh pastures were available and the milk could be produced at the lowest cost. In the winter, the cows were allowed to go dry and little butter was made. Under those conditions the cattle required the minimum of feed and care and the hay gathered on the farms during the summer, supplemented by a small amount of home-grown grain, sufficed to keep them through the winter. In the late autumn, the farmers drew their summer's butter overland to Catskill, bringing back the groceries necessary for the winter. The trip required about one week. Another trip was sometimes made in the spring.

Under this regime the farmers of the region were prosperous and there were many fine, well-kept farms. Since the topography is such that much of the best farming lands lies near the heads of the larger valleys, many of the most profitable farms were located in such situations. Throughout the region the dominant factor, aside from personal ability, controlling the success of farming, was the character of the soil and the ease of cultivation. Since the distance to market was about the same from all parts of the quadrangle, or rather, since with only one or two trips per year a slightly greater distance from market was not a serious drawback, there was little advantage in any particular location as compared to another provided the soil and topography were equally favorable. The value of vicinal location for the region was essentially *undifferentiated*. One location was nearly, or quite, as favorable as another.

During the years from 1870 to 1894 the railroad was built across the eastern and central parts of the quadrangle along the valleys of the East and West Branches of Delaware River. With the advent of the railroad, the overland haul to Catskill was given up and a market was opened for milk as well as for butter. The demand on the part of New York and adjacent large cities was great and there was a change, hastened by the constantly increasing scarcity of labor, from the production of summer butter to that of winter milk. The change in season was

caused by the insistent demand for milk in winter as well as in summer, and by the higher prices which were paid for winter milk.

The production of milk, particularly of winter milk, immediately made the dairymen strictly dependent upon the railroad as an outlet for their product and as a means of importing the large quantities of cattle feed, especially grain, needed for the production of the winter milk. Thus, for two vital necessities, the dairymen became closely dependent upon the railroad.

Moreover, milk to be shipped to New York must be delivered at the railroad every morning. This immediately placed all farms which happened to be situated far from the railroad at a great disadvantage, since the farmer with his team must either spend a considerable part of his day in hauling his milk to the railroad, or he must pay a cash sum of from two to ten or more cents per forty-quart can to hire it hauled. As a result of this, though the total prosperity of the region may have been increased, the farms situated at a distance from the railroad, even though they possessed excellent soil and favorable topography, began to decline in value, while those nearer to the railroad increased, even where soil conditions were less favorable.

How great, under the changed conditions, is the advantage enjoyed by the farmer living near the railroad can best be illustrated by a rough calculation.

Suppose two farms, equally good in all other respects, are situated, the one one-half mile from the railroad, the other five and one-half miles distant. Under the old system, by which the product was hauled once each year to Catskill, the more distant farmer was compelled to travel on the one or two round trips with his product at most only ten miles per trip farther than the other. This slight difference, coming as it did in the fall when other work was slack, was negligible. Under the present conditions, however, both farmers make the daily trip to the railroad with their milk. The one travels eleven miles, the other one mile. The more distant farmer is compelled to travel in the course of a year 3650 miles farther than the other. Assuming that the services of a man and team are worth $5.00 per day and that the round trip requires, on the average, one half day, the more distant farmer, delivering a full load—about one ton or 23 cans—of milk each day, is taxed $912.50 per year for his unfavorable location. Assuming that he produces only a partial load of milk per day, his tax will be less than this figure, but more than half, since the trip must be made; the time required to make the trip is nearly the same, and the wear and tear on horses and wagon is not reduced by half. If this farmer chooses,

rather, to pay ten cents per can, the prevailing price for such a distance, to have his milk hauled to market and produces a ton, or 23 cans, of milk per day, his tax is about the same $839.50. Few individual farmers produce as much as this, but 10 cans is not an uncommon amount. For this amount the tax would be $365.00 per year, most of which would be clear profit for the farmer located near the railroad.

The result of the changed conditions has been to put a high economic premium upon location near the railroad. A marked concentration of the prosperity of the region has taken place.

Whereas, formerly, there were many profitable farms scattered over the quadrangle wherever soil and topographic conditions were favorable, they are now confined mainly to sections within moderate distances of the railroad, while farms farther away are declining in value in spite of the fact that not uncommonly they have better soil and topography. The fine old farm houses on these more distant farms, built before the advent of the railroad and now in very many instances sadly run down and neglected, bear mute witness to the change.

There can be no doubt that the present state of affairs is, in part, the result of a mal-adjustment to the new conditions brought about by the building of the railroad, and could be remedied, in some degree at least, by suitable adjustments. If, for instance, agriculture on the more distant farms were to be conducted on some other than a milk basis, the disadvantage of the present situation might be largely overcome, or if skimming stations or small creameries were to be established at favorable points too far from the railroad for profitable hauling, it is possible that the more concentrated products—cream and butter—might be hauled to the railroad without serious economic disadvantage. The cost of installation, upkeep, and labor would, however, counteract in some degree the advantages thus gained. In sections of the quadrangle most distant from the railroad a few such skimming stations have been established, but they are not numerous enough, and probably could not economically be numerous enough to counteract entirely the disadvantages of unfavorable location with raw milk production as the dominant industry on all farms, whether favorably or unfavorably located.

In certain valleys most distant from the railroad, e. g., the head of the Little Delaware, the change above described has not occurred. The farmers still confine their attention principally to butter making and to the raising of cattle and hogs, though local skimming stations have partly supplemented the home buttermaking. It is notable that these valleys still exemplify the old-time undifferentiated prosperity. The success of agri-

culture there is still controlled mainly by the physiographic factors—soil and topography. Many of the most prosperous farmers are located farthest from the railroad near the heads of the valleys where the broad, open, late mature valley-forms are best developed.

. . . . . .

The Catskill Mountain region furnishes a clear illustration of a change in the value of the geographic factor of vicinal location from the earlier state, under which the value was *undifferentiated* and was essentially the same for all parts of a considerable area, to the present condition of sharp *differentiation* within the larger area. The differentiation was evidently brought about, primarily, by a change in the means of transportation which caused readjustments of the prevailing industry. Similar readjustments should be expected everywhere to have followed the building of railroads or any other revolutionary changes in the means of transportation. It is worthy of note that the introduction of the automobile, with its accompanying improvement in country roads, must inevitably tend, in some degree, to break up the sharp differentiation now prevailing, though it can scarcely reestablish the former conditions.

DULUTH, A PRODUCT OF THE WATERWAYS

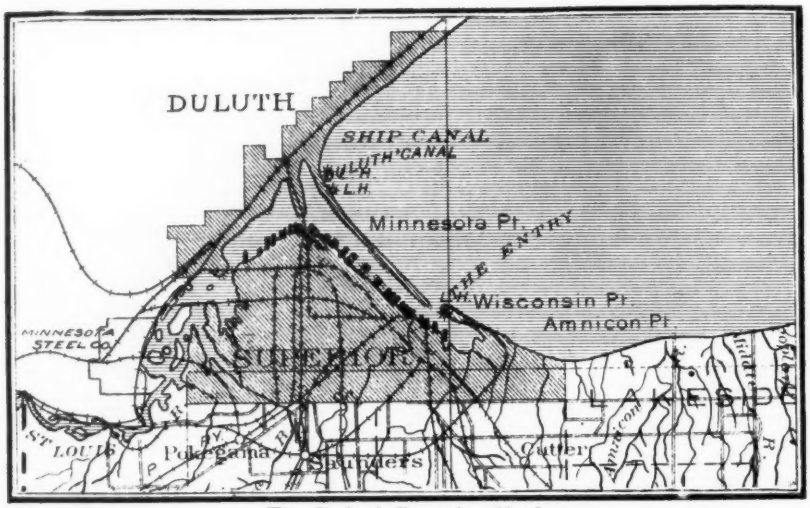
By Eugene Van Cleef
State Normal School, Duluth, Minn.

UPON the slopes of a long range of hills rising out of the deeps of a great lake, there lies a city full of the spirit of youth that awaits with a glad welcome the approach of every mariner. It faces the rising run and is inspired each morning by the rays which dance and play upon the bosom of Lake Superior.

The inspiration of the wholesome sparkling waters of the world's largest fresh water lake is doubly emphasized by the resources which lie at Duluth's back door, for they rank among the "Unlimited." Their development during the past quarter of a century has been a factor of the Great Lakes. Had it not been for the Great Lakes, the grain and lumber of the Northwest would not have reached the markets for many years. Similar products from areas located much closer to the eastern market would have taken precedence, for by rail the nearer the market the less the freight charges. The water highway carries the freight for a mere fraction of the cost by rail. For example, the cost of carrying a bushel of grain averages in round numbers 2 cents from Duluth to Buffalo via water; via rail the same bushel

approaches 10 cents. If 119,000,000 bushels of grain are shipped, as was the case during the season of 1915, one can appreciate the meaning of the difference in cost between rail and water shipments.

Duluth shipped 174,994,000 feet B. M. of lumber to the lower lake ports last year. She supplied the furnaces of the eastern industrial world with 26,316,084 tons of iron ore. In return the eastern coal miners sent 8,343,932 tons of hard and soft coal to be distributed throughout the Northwest. Many other products found their way upon these lakes, totaling the tremendous sum of $368,802,154.



The Duluth-Superior Harbor.

A more magnificent harbor for handling all of this commerce is perhaps nowhere else to be found. A peninsula 7 miles in length stretches from the western shore toward a similar one 3½ miles long extending from the eastern shore, both of which protect from the reach of the sometimes stormy inland sea all those sailing masters who would seek its shelter. The St. Louis River flowing from the southwest broadens its mouth a few miles above its junction with the lake, to afford still greater protection and harbor space.

Forty-nine miles of lineal quayage are available. That this figure is not one to be considered lightly, reflect for a moment that the lineal quayage of Liverpool and Birkenhead is only 36 miles, that Rotterdam has only 23 miles and Hamburg only 37 miles. The harbor is not to be classified with the small inlets and bays scattered here and there upon the country's lakes or even its coasts. It is a *world* harbor. Ships slightly over 600

feet in length and drawing 26 feet of water enter and dock, oftentimes without the aid of a tug. The world's great leviathans drawing 36 feet or more of water could, if necessary, be easily accommodated.

The Canadian Government has drawn plans for a route from Georgian Bay to Montreal via the Ottawa River to be known as the Georgian Bay Ship Canal, which if executed will allow ships to sail directly from Duluth to Liverpool and other European ports. One must remember that, on the average, the ocean freighters are no larger than the grain, ore, or coal boats of the Great Lakes. In fact many are smaller. No more skillful captains pilot them. Open this new waterway and Duluth is destined to grow even more marvelously than it has in the past score of years. The harbor will then compete with that of New York. The distance then between Duluth and Liverpool, all water route, will be 4245 miles; between New York and Liverpool it is now 3571 miles. The difference in distance of one or two sailing days is more or less of a negligible factor when the goods carried are non-perishable and the "fuel" for transportation is largely the wind. At present the distance between Duluth and Liverpool via the lake and rail route to New York, is 4712 statute miles. Think of not only a reduction of 500 miles but also of the saving in cost of transfer of cargo twice, namely at Buffalo and at New York.

Still another advantage graces Duluth. St. Louis River, one of the sources of the Great Lakes, affords over 40,000 horse power and holds 40,000 more awaiting the call. In the middle of its course and only fourteen miles from the city the meandering river is an apparently useless continuous rapid for a distance of about five miles. Through the keenness and ingenuity of one of the resident engineers these waters were gathered into a reservoir and carried over the uplands of the valley through an open canal 2 miles long and through a pipe line one mile in length to give an effective head of 375 feet. Between Niagara and the foot of the Rockies no waterfall can equal it. The power moves the street cars of Duluth and those of Superior, Wis., as well as the wheels of many industrial plants in the vicinity.

Here then is one of the stories of the beneficence of nature's waterway gifts. Remove the Great Lakes and the cities will perish. Improve the Great Lakes and not only Duluth, the "Zenith City of the Unsalted Seas", but all the other aspiring commercial and industrial communities dotting their shores will continue in the ascendency.

AIMS IN TEACHING GEOGRAPHY

As Laid Down by the Indianapolis Course of Study

THE aims of teaching geography, are in general, three:

1. To give the child a definite knowledge of the location and character of certain important places or regions on the surface of the earth—information which every intelligent person should have at his command. For example, the child should be taught the location of California, its chief city, its climate, and two or three of its main products.

2. To lead the child to see that the earth is adapted to man's habitation and, therefore, fitted by a wise Creator to be man's home. For example, three great needs of civilized man everywhere are food, shelter, and clothing; wanting these, he can not live. These necessities are provided in the northeastern section of the United States, partly by the products of New England soil and party by bringing from the West and South other necessary articles, as flour and cotton. In Cuba the matter of shelter is not so important as in Indiana; on the other hand, the Desert of Sahara is not fitted for man's habitation; and large as it is, this portion of the earth's surface is not required for his use. In spite of the great population of the world, there are productive regions enough to supply all the wants of man.

3. To show the interdependence of man. For example, New England depends upon the West for part of its food, and the West upon the East for numerous manufactured articles. Every breakfast table contains the contributions of various countries and peoples. A short wheat harvest in one section of the world means dearer bread everywhere.

To attain the foregoing objects, it is necessary to cultivate the child's powers of observation, reason, and imagination. The observation is trained by noticing, from season to season, the changing position of the sun; by classifying and naming the trees in the child's own neighborhood; by teaching the reading of maps. The reason is trained by inferring that snow is a form of vapor; by noting how the fertility of Egypt is dependent upon the rains of equatorial Africa; by discovering the four conditions favoring the building of steamships on the Clyde; by explaining the cause of the deficiency in rainfall in certain parts of the United States. The imagination is trained by the effort to make mental pictures of the mountains and rivers of other countries, of the scenery, climate, flora and fauna, races of men and their institutions, manners, customs, and occupations. The basis for these images is the child's observation of the hills and streams near his home. By the aid of pictures and descriptions, the

child is helped to imagine the dense vegetation of the Amazon Valley, and the great wheat fields of Dakota.

Geography, then, is not only a description of the earth's surface, but a study of the people who inhabit it, and their life as affected by physical environment. This study should possess a human interest, showing the earth as the home of mankind and its adaptation to man's activities.

INDIANAPOLIS PLAN FOR THE STUDY OF AFRICA

(Grade 6B)

Problem: Considering the proximity of Africa to Europe, why have there been so few settlements and explorations until recently?

I. *Conditions causing delayed development.*

A. What have the location and climate of Africa to do with its delayed development?

1. Latitude. Chiefly in torrid zone.
2. Climate. Unhealthful.
   a. Excessive heat and scarcity of rain causing deserts.
   b. Excessive heat and overabundance of rain resulting in tropical jungles, plants and animals.
   c. Coastlands also malarial.

B. What has the *surface* to do with the delayed development?

1. Almost a continuous rim of mountains near coast. Name the important ranges. Study the Atlas mountains.
2. Interior. Plateaus and deserts. Make a careful study of the two important deserts.
3. Coastal plains. Short. Natural resources.

C. What has the *coast line* to do with the delayed development? Regular coast line and few harbors.

D. What has the *drainage* to do with the delayed development? Well supplied with rivers. Insurmountable falls and rapids, especially near mouth of rivers. Study the chief lakes and the five most important river systems.

E. What had the *character* of the early inhabitants to do with the delayed development?

1. Africa, the home of the lowest types of savages.
   a. Unable to develop continent themselves.
   b. Resisted civilization.
   c. Contrast the savages of the jungles, savannas, and coastal plains.
2. Character of Egyptians. High civilization that early ceased to be progressive.
3. Greek and Roman influence not permanent.
4. Mohammedan invasion. Limited by their religious ideas.

II. *Contrasts.*

A. United States, discovered centuries later than Africa, has developed much more rapidly. Contrast as to
   1. Location.
   2. Climate.
   3. Surface.
   4. Coastline.
   5. Drainage.
   6. Character of people.

B. Make a similar contrast between Africa and Europe.

C. Compare Africa with Australia.

III. *Modern progress improving conditions due to entrance of the great commercial nations of Europe.*

A. Reasons for European appropriation of Africa.
   1. Commercial expansion.
      a. About the sixteenth century began the struggle for commercial supremacy among the leading nations of Europe; namely, Spain, Portugal, Holland, France, and England.
      b. Development of means of transportation from sailboat to the modern steamship. Why was the sailboat a hindrance to the development of Africa?
   2. Increased population demanded new territory and led to colonization in Africa.
   3. Industrial development. Factories required more raw material than home countries could produce.

B. Result of European appropriation of Africa. With the exception of Liberia and Abyssinia practically the whole of Africa is under the domination of European countries; namely, England, Germany, France, Belgium, Portugal, and Italy. In studying the influence of the foregoing countries in Africa consider the following points:

1. Territory owned; territory controlled.
2. Cities to be noted: Cairo, Alexandria, Cape Town, Johannesburg, Kimberly, Khartum. Note European origin of the names of cities.
3. Service of mother country to colonies.
   a. Material improvements.
   b. Culture.
4. Value of colonies to mother countries.
5. Contrast original industrial conditions with those of the present, proving that the white man is revolutionizing all industrial methods, especially those of farming, stock-raising, mining, and commerce.

After this general survey of Africa will come the detailed study of important countries. The following deserve special attention:

British South Africa.
Egypt.
Barbary States.
Congo region.
French possessions.
German possessions.
Liberia.

The study of these countries should also be approached from a problematical point of view.

Egypt

I. *Why was it so great formerly?*

A. Nile river.
   1. Annual overflow fertilizing region.
   2. Transportation.

B. Isolated position gave protection against invasion, resulting in internal development.
   1. Bordering seas.
   2. Surrounding desert.

C. Character of people.
   From the Nile came the germ of much found in the later culture of the peoples of western Asia, of the Greeks and Romans, and of the nations of modern Europe.—Myers.
   1. Peaceful.
   2. Conservative. Great attention to internal development rather than to foreign affairs.
   2. Culture.

a. Art. Glass coloring; gem cutting, design (scarabaeus, lotus, etc.); architecture (pyramids and temples).
b. Literature.
c. Science. Geometry, astronomy, and medicine.

(After many centuries of civilization the nation declined.)

II. *Modern conditions.*

A. People. A great mixture of peoples from all parts of the world, resulting in a lack of national spirit, thus making foreign encroachment easy.

B. Government.
1. Monarchy. Chief ruler a khedive.
2. Under the control of England. Very valuable to England on account of its location and its products.
a. Agriculture. Extensive irrigation under British direction. Assuan dam regulates the distribution of water. Cotton, rice, wheat, maize, sugar, millet.
b. Manufacturing. Unimportant. Jewelry and leather work.
c. Commerce. One of the chief commercial countries of Africa.
1. Railroad developing. Cape to Cairo Railroad the most important.
2. Nile river.
3. Caravans.
4. Foreign commerce. Great transit trade for Europe and Africa. Exports cotton, ivory, palm oil, ostrich feathers. Imports manufactured products.
d. Importance of Cairo, Alexandria, and Port Said.

Suggestive Questions

1. Explain the various methods of transportation in Africa. Compare commerce in Africa with that in the United States.

2. Compare a cargo of goods leaving New York for Liverpool with that of a caravan from the Sudan region to Cairo or Alexandria.

3. Of what great advantage is the Suez Canal to the commercial world?

4. Compare the cost and labor of constructing this canal with that of Panama Canal. Under the direction of what nation was each built?

5. Compare size and value of cargoes passing through Suez Canal and that of Sault Ste. Marie. Why do sailing vessels not use the Suez Canal?

6. Why are the political boundary lines in Africa so fluctuating? Compare with South America.

7. Why is it better for Egypt to be controlled by a Western progressive civilization, rather than by an Oriental power such as Turkey?

8. What can you say of the railroads in Africa at present? Discuss the "Cairo to Cape Town" railroad. What nation is building it, and for what special purpose? Compare and contrast present method of transportation with that of Africa before the coming of the modern, progressive white man.

9. How do the rivers of Africa compare with the Mississippi or the Amazon as commercial routes?

10. Why are so many of the black race of Africa in the United States?

11. Tell what Liberia is, and show what relation exists between that republic and the United States. The resemblance between its government and ours. (Founded by free negroes sent by the American Colonization Society in 1822—declared independent in 1847).

12. Discuss the work of the European nations colonizing and claiming nearly the entire continent of Africa. Show how these colonies grew from small trading posts into present proportions. Which is the dominant power now?

13. Why has the United States made no claim to possessions in Africa?

14. Compare seasons in Africa with those in the United States. In which of these countries is the "Fourth of July" on a winter day and Christmas on a summer day? Which side of a hill is better located for agriculture in the United States? What about this in Africa? Discuss these facts.

15. Which coast of Africa is more like the countries of Southern Europe as to climate and results? Which portion of Africa resembles the jungles of the Amazon? Where are most of the settlements in Africa being made now?

16. In what portion of Africa did the Europeans settle largely at first? Why?

17. Compare the African farmer with the farmer of the prairies of the United States.

18. Compare the lakes of Africa with those of the United States—as to number and value to commerce.

CURRENT MATERIAL FOR THE GEOGRAPHY TEACHER

Map of Florida Just Issued by United States Geological Survey

In 1909 the United States and nearly all the other principal countries of the world, by international agreement, planned to prepare maps of the entire surface of the earth, to be published on a scale one-millionth of actual size, or about 1 inch to every 16 miles. The United States Geological Survey is preparing the maps of this series that include the United States. All the maps are to be uniform in shape and general appearance and are to have the same conventional signs. The Geological Survey is utilizing the data collected for the world maps in preparing and publishing maps of each State on a larger scale—about 1 inch to every 8 miles. A map of the entire United States on this scale would cover a sheet measuring 20 by 31 feet.

The Survey has already issued such maps for 33 States, the latest one being that of Florida, which is one of the largest of the series. It measures 44½ by 61 inches, and is sold and delivered by the Geological Survey, Washington, D. C., for 45 cents.

Enormous Cost of Bad Roads

There is no need of discussing the importance of good roads. They are essential to comfortable travel, to the economic production and distribution of farm products, to the development especially of satisfactory rural schools, and to the improvement of the social life of the nation. Bad roads are very expensive possessions. It is estimated that it costs 23 cents under existing conditions to haul a ton a mile on the average country road and only 13 cents on a properly improved road, but this is not all the story. The direct cost is very great and the indirect costs are possibly even greater. With bad roads the farmer is compelled to haul when he should be engaged in other activities, while with good roads he can plan his operations without reference to the weather. The States and the local units, as has been intimated, have strikingly recognized these truths by greatly increasing their appropriations and by devising better machinery.—From *The American Review of Reviews.*

Rice in the United States

Rough rice, the material used in this industry, generally reaches the mill in the same condition in which it leaves the thrasher and contains more or less dirt and other foreign substances. The mills clean the rough rice, remove the outer shell, or hull, and the inner cuticle, or bran, and usually polish the

grain. At one time rice was generally cleaned on the plantations producing it, but now, with the exception of small quantities produced outside of the important rice-growing districts, it is all treated in specially equipped mills. For years it was the practice to give the rice a high polish in order to improve its appearance, but it has been found that this treatment results in removing some of the most nutritious parts of the grain, and the use of rice which has been subjected to little or no polishing is now coming into favor.

The change in the habitat of rice in the United States has necessarily brought about a change in the location of the rice mills. Whereas most of the cleaning and polishing establishments were formerly in the Carolinas and Georgia, the industry in these states has almost disappeared and now nearly all the mills are located in Louisiana, Texas, and Arkansas, with a few small ones in the Pacific coast cities.

Formerly the rough rice was generally milled on contract for a stipulated price, or for a portion of the rice itself. With the erection of the larger and more up-to-date mills in the new rice-growing districts, however, has come the general practice of buying the rough rice outright, milling it, and selling the various products obtained. The industry has accordingly changed almost entirely from a custom-milling to a merchant-milling basis. Except in the case of the Pacific coast cities, where only foreign rice was treated, the mills were generally located in the immediate vicinities where the rice was grown. Louisiana reported 56.3 per cent of the total value of products, Texas 31.3 per cent, and Arkansas 8 per cent, these three states combined contributing 95.6 per cent of the total for the country. In 1914 there were 59 establishments engaged primarily in the cleaning and polishing of rice.

The Rubber Industry

The production of the greater part of the world's raw rubber by British enterprise and the manufacture of 65 per cent of it in the United States is an apparent anomaly in international commerce. It is proof of the breadth of British commercial development, and of the ability of American manufactures, backed by the greatest domestic consumption in the world, to keep well in the van of scientific industrial efficiency when production is well organized, on the side of progressive research as well as of economic manufacture and sale. At the annual meeting of the Rubber Plantations Investment Trust, Ltd., in London a few weeks ago, the following statement about the current rubber situation in the world was made:

The world's output of rubber in 1915 was approximately 150,000 tons, against 120,000 in 1914 the proportion of plantation-grown rubber being 104,000 tons in 1915 against 71,000 tons in 1914; the production of wild rubber shows a small decline, so that rather more than the total increase in the world's production is accounted for by the increased production of plantation rubber. It is anticipated that the output of plantation rubber in 1916 will be about 140,000 tons; the increase of 1916 output over 1915 being about the same as the increase in 1915 over 1914.

Approximately 83 per cent of the plantation rubber to be produced in 1916 will be grown in British colonies, and when you take into account the large proportion of rubber produced in the Dutch East Indies on estates owned by British companies, fully 90 per cent of the present output of plantation rubber may be attributed to British enterprise.

Although the rubber plantations which British investment enterprise has developed are yearly increasing output at a rapid rate, they are hardly keeping up with the world's increasing demands for rubber. The Philippines, among our own possessions, and many neutral lands in the rubber zone of the world, offer opportunities for American investment enterprise of the same kind and considering the great importance of rubber, also the possibility of the establishment of a system of protective export duties on such raw materials over the British Empire, a development of the same kind under American auspices might prove of great future national advantage.—[*The Americas.*]

Alaskan Glacier Retreats

Fifteen years ago a member of the United States Geological Survey mapped the front of the Barry Glacier, which is in the northwest corner of Prince William Sound, Alaska. In 1910 it was found that the front of the glacier had gone back about 3 miles from the position it occupied in 1899. B. L. Johnson, of the Geological Survey, examined the front of Barry Glacier in the fall of 1914 and determined that the total retreat of the glacier between 1910 and 1914 appeared to be about 8,200 feet, a retreat of 4½ miles in 15 years. A short account of the retreat of this glacier by Mr. Johnson has just been published as Professional Paper 98-C. It includes a sketch map showing the position of the glacier front in seven different years and several reproductions of photographs of the glacier.

A copy of the report may be obtained free on application to the Director of the United States Geological Survey at Washington, D. C.

Great Alaskan Earthquake

The Yakutat Bay earthquake occurred on September 3, 1899, and was followed during the next three weeks by many less violent shocks. The area of greatest intensity lay along the flanks of the St. Elias Range, in a region of high mountains and superb glaciers, and the movement was accompanied by enormous avalanches and rock slides. This was a vivid demonstration that the growth of mountains is still in progress. At some places in the region the land subsided and forests were submerged. At most places, however, the land rose, and many points which before had lain below sea level were elevated above it. Barnacles which had lived in ocean water were found 47 feet above the sea.

In addition to making an exhaustive study of the movements of the land which took place in the Yakutat Bay region and of the effects of the earthquake on the many glaciers of the region, the writers amassed a great fund of information in regard to the intensity of the quake throughout the whole area within which it was sensible and recorded the testimony of many witnesses. The shock was felt at distances of 670 and 1,200 miles in opposite directions from Yakutat Bay, and the area of the region over which the tremblings were felt is more than 1,500,000 square miles. This gives the Yakutat Bay earthquake a place among the very greatest earthquakes of historic times. Previous great shocks, without exception, resulted in heavy loss of life, the number of persons killed reaching in one of them the enormous total of over 60,000. The Yakutat Bay shock was fortunately free from fatalities because the region in which it occurred is sparsely settled.

This report—"The Earthquakes at Yakutat Bay, Alaska, in September, 1899"—is illustrated with halftone views, showing the effects of the earthquake, and with maps of the region and seismograms of the shock as recorded at places as far distant as Batavia, Java; Cape Town, South Africa; and Catania, Italy. The report may be obtained from the Superintendent of Documents, Washington, D. C., at a cost of 60 cents in paper and 75 cents in cloth binding.

GEOGRAPHICAL ITEMS

The American Geographical Society of New York received into membership 1118 new Fellows at the November meeting.

Dr. Hamilton Rice and his party sailed from New York Nov. 15 for the purpose of carrying on a systematic exploration of certain rivers of the Amazon system.

Brazil has arranged for the importation of 20,000 Japanese farm laborers during the next two years; they will be employed mainly on plantations in the cultivation of rice, beans, and coffee. This will add another racial element to Brazil's already badly mixed population. There is no color line in Brazil.

A line of steamers has been established on the Paraguay River between Rosario in Argentina, and Puerto Sueriz, 1800 miles up the river in Bolivia. In the larger part of South America, the rivers are still about the only avenues of travel and transportation, just as they once were in the United States and still are in part of Canada.

A far-reaching program of railroad building is in progress in Russia, partly for immediate and partly for future needs.

Captain Roald Amundsen, discoverer of the South Pole, came to America in November for the purpose of purchasing an aeroplane to be used in his proposed attempt to reach the North Pole by a combination of ship and aeroplane.

Professor Robert DeC. Ward of Harvard University, will be the visiting lecturer of 1916-17 at the University of Wisconsin, Department of Geology and Geography.

Professor Walter S. Tower of the Department of Geography, University of Chicago, has been lecturing at Harvard University during the fall quarter, but returned to Chicago immediately after the opening of the year.

Professor R. S. Holway, head of the Department of Geography of the University of California, is on leave of absence and attended the meeting of the Association of American Geographers in New York.

The University of London has joined the ranks of the British Universities that give a diploma in geography. British universities, with characteristic conservatism, have been much slower than those of the continent in taking up geography as a serious branch of higher learning.

The National Council of Geography Teachers has reached a membership of over 800. It will probably reach the thousand mark by June.

Bulletin No. 4 of the Illinois Council of Geography Teachers appeared in December. It contains an article on "The Need of a General School Atlas," by Professor J. Paul Goode of the University of Chicago. Miss Stark, president of the Illinois Council, is doing the geography teachers of her state a genuine service through these bulletins.

MEETING OF THE ASSOCIATION OF AMERICAN GEOGRAPHERS

The 1916 meeting of the Association of American Geographers was held at Columbia University, New York, December 28, 29, and 30. The attendance was somewhat larger than the average, due in part at least to the presence of a considerable number of interested geographers and teachers of geography who are not members of the Association. Some of the important papers were presented by non-members who had been invited by the secretary.

The quality of the papers presented was up to the high standard which the Association has maintained, yet an unusually large number of them were geographical in only a limited sense. The majority of them dealt with physical, geological and meteorological topics and many of these gave little or no attention to human or other life responses. In recent years such papers have been in the minority in the meetings of the Association, and this year's program probably represents an exception rather than any change in the trend of the Association's work.

We can not avoid a feeling of regret that nearly half of the members present did not offer papers; among them were several of the older and stronger men of the Association to whom the younger men look for leadership and inspiration.

The following officers were elected for 1917:

President, R. DeC. Ward.
Vice-Presidents, W. H. Hobbs, Harlan H. Barrows.
Secretary, Richard E. Dodge.
Treasurer, Francois E. Matthes.
Councilor, A. P. Brigham.

The Council announced that the invitation of Chicago University had been accepted, and that the meeting of December, 1917, will be held there.

Following is the program of an interesting symposium on The Geography of the War, which was conducted by Professor Douglas Wilson Johnson on Friday evening, December 29:

The Geographic Factor in Military Problems—Douglas W. Johnson.
The Plains of Northern France—Sumner W. Cushing.
Rivers and Marshes of the Eastern Front—Lawrence Martin.
The Danube Valley and the Balkan Complex—Ellsworth Huntington.
The Carpathian Mountains and Transylvanian Alps—Emmanuel De Martonne.

Geographic Aspects of the War on Water—J. Paul Goode.
Geographic Aspects of the War in the Air—R. DeC. Ward.
Economic Geography of the War—J. Russell Smith.

THE NEW YORK COUNCIL COMPLETES ITS ORGANIZATION

The first step in the organization of the New York State Council of Geography Teachers was a conference of the geography teachers of the State Normal Schools held March 17, 1916, in Buffalo. The earnest participation in the full and free discussion of problems pertinent to the training of teachers for the schools of the State, and the recommendations for betterment unanimously passed, augur well for the future of the geography work of the Empire State.

Through the support of this organization and the Advisory Board of the State Council, a Geography Section was secured in the State Teachers' Association held November 28 and 29. Practical and helpful topics in geography were excellently presented by some of the leading geographers of the state at each of the three sessions. The need of this work was shown by the large attendance—between 900 and 1000 being present at some of the sessions—and by the response for membership in the National and State Councils. The exhibit of the best available materials as aids in the teaching of geography, was greatly appreciated by the teachers.

New York State is fortunate in having the following able geographers on its Advisory Board: Prof. Albert P. Brigham, Colgate University, Hamilton, N. Y.; Prof. C. T. Mc Farlane, Columbia University, New York City; Miss Clara B. Kirchwey, and Miss Caroline W. Hotchkiss, Horace Mann School, New York City; Dr. O. D. von Engeln, Cornell University, Ithaca, N. Y., and Miss Marion B. Forsythe, State Normal School, Potsdam, N. Y.

The cause of better geography teaching in New York State is only launched; plans for furthering the genuine helpfulness of the State Council to every member and for arousing an interest in geographical topics among the public, are being perfected. The program of the Buffalo meeting follows.

GEOGRAPHY SECTION.

Hutchinson High School, Room 340.

President, Alice Wessa, New York City.

Tuesday Morning, 9:30 o'clock.

Suggestions for Home Geography in the Third Grade, Miss Marion B. Forsythe, State Normal School, Potsdam.

The Geography of New York State, Prof. Albert P. Brigham, Colgate University, Hamilton.

The Purpose of the National Council of Geography Teachers and the Organization of the New York State Branch.

Tuesday Afternoon, 2 o'clock.

Place of "Conservation of Natural Resources Concepts" in Geography Teaching, Dr. O. D. von Engeln, Cornell University, Ithaca.

The Influence of the Junior High School Upon Geography, Miss Clara B. Kirchwey, Horace Mann School, New York City.

Wednesday Morning, 9 o'clock.

Conference of the Geography Teachers of the State Normal Schools. Round Table Discussion: (1) The Use of Textbooks and Maps in the Fourth Grade. (2) What do We Want Our Students in the Grades to Know About Geography at the End of the Course?

An exhibit of the best available materials as aids in the teaching of Geography was prepared by Miss Caroline W. Hotchkiss of the Horace Mann School, New York City.

(Signed) Alice Wessa,
New York State Representative.

SUPERLATIVES

In an old grammar that we studied in the little red school house was the sentence (for parsing): "The axis of the earth sticks up visibly through each and every town of New England." The traveler finds this to be true of all sections of the United States and of the nation as a whole. We are very fond of telling visitors that our state has more dairy cows, or quarries more gypsum, or raises more cranberries than any other state; or that our city has the biggest tooth-pick factory in the world. Our authority for the last mentioned type of superlative may be only the local newspaper but in such cases no better authority is needed.

The Journal of Geography is disposed to announce a few superlatives regarding geographical matters in this country.

1. That we have the largest geographical society in the world—the National Geographic Society of Washington, with nearly 500,000 members.

2. That we have the geographical society with the most exacting membership requirements in the world—the Association of American Geographers, which finds only one person in a million in our population able to meet its qualifications for membership.

3. That we have the most generous geographical society in the world—the American Geographical Society of New York, whose generosity toward various geographical activities is splendidly unselfish and disinterested.

4. That we have the most beautiful geographical magazine in the world—the National Geographic Magazine, with a circulation of over 500,000 copies—fourteen carloads a month.

5. That we have in the Geographical Review a scientific magazine which is rapidly approaching the best of its type in the world if indeed it has not already reached that status.

6. That we have the best elementary text books in geography produced in any country. R. H. W.

THE PASSING OF THE GREAT RACE

The above is the title of a new book written by Madison Grant.* The "Great Race" is the Nordic whose home land is around the Baltic and North Seas. The purpose of this brief note is merely to call attention to two of Mr. Grant's positive convictions which are of interest to geographers. He is unqualified in his belief that racial qualities are so deep-seated as to be all important. He says: "This something which we call 'genius' is not a matter of family but of stock or strain and is inherited in precisely the same manner as are the purely physical characters, * * * but it is race, always race, that produces genius." The reader wonders what is the reason that one race is so superior to others, for race is a result of the factors that produced it; what are those factors? Later in the book (p. 152) speaking of the "Great Race" Mr. Grant says: "The vigor and power of the Nordic race as a whole is such that it could not have been evolved in so restricted an area as southern Sweden. * * * The Nordics must have had a larger field for their specialization and a longer period for their evolution. * * * For the development of so marked a type, there is required a con-

*Scribner's, $2.00 net

tinental area isolated and protected for long ages from the intrusion of other races. The climatic conditions must have been such as to impose a rigid elimination of defectives through the agency of hard winters and the necessity of industry and foresight. * * * Such demands on energy, if long continued, would produce a strong, virile, and self contained race."

In short, the author considers that race is everything and then holds that race gets its essential qualities from geographical environment.

PORTO RICO'S GROWTH IN PRODUCTION AND EXPORT

In fifteen years, Porto Rico has shown an eight-fold increase in exports and a ten-fold increase in imports, the growth both relative and proportional being overwhelmingly located in the statistics of the island's trade with us. The crux of the situation may be shown in these selected figures:

Porto Rico's Exports

	To the U. S.	To Other Countries	Total
1901	$ 5,581,288	$3,002,679	$ 8,583,967
1910	32,095,645	5,864,574	37,960,219
1916	60,952,768	5,778,805	66,731,573

Porto Rico's Imports

	From the U. S.	From Other Countries	Total
1901	$ 6,965,408	$1,952,728	$ 8,918,136
1910	27,097,654	3,537,201	30,634,855
1916	35,892,515	3,058,641	38,951,156

Under the helpful encouragement of the government, Porto Rico's production of sugar, coffee, tobacco, and fruits, and the successful marketing of them, have literally sprung up. In 1901, the island exported $4,715,611 worth of sugar at $68.43 per ton. In the year ended June 30, it exported $45,809,445 worth at $107.79 per ton. In 1901, $1,678,765 worth of coffee was exported; in 1915, $7,082,791 worth. Orange shipments valued at $84,475 in 1901 rose to $790,797 last year; pineapples, green and canned and grapefruit, in 1901 included in $16,992 worth of "other fruit," have risen in the export record to $1,176,406 worth of pineapples, $122,876 worth of canned pineapples, and $837,014 worth of grapefruit; $8,834 worth of cocoanuts have sprung up to $413,573 worth.—[*The Americas.*]

OFFICIAL ESTIMATES OF THE POPULATION OF THE UNITED STATES FOR JANUARY 1, 1917

Continental United States	102,826,309	New Mexico	416,966
Alabama	2,348,273	New York	10,366,778
Arizona	259,666	North Carolina	2,418,559
Arkansas	1,753,033	North Dakota	752,260
California	2,983,843	Ohio	5,181,220
Colorado	975,190	Oklahoma	2,245,968
Connecticut	1,254,926	Oregon	848,866
Delaware	214,270	Pennsylvania	8,591,029
Dist. of Columbia	366,631	Rhode Island	620,090
Florida	904,839	South Carolina	1,634,340
Georgia	2,875,953	South Dakota	707,740
Idaho	436,881	Tennessee	2,296,316
Illinois	6,193,626	Texas	4,472,494
Indiana	2,826,154	Utah	438,974
Iowa	2,224,771	Vermont	364,322
Kansas	1,840,707	Virginia	2,202,522
Kentucky	2,386,866	Washington	1,565,810
Louisiana	1,843,042	West Virginia	1,399,320
Maine	774,914	Wisconsin	2,513,758
Maryland	1,368,240	Wyoming	182,264
Massachusetts	3,747,564	*Outlying Possessions*	
Michigan	3,074,560	Alaska	64,873
Minnesota	2,296,024	Guam (a)	12,866
Mississippi	1,964,122	Hawaii	217,660
Missouri	3,420,143	Panama Canal Zone (b)	31,048
Montana	466,214	Philippine Islands	8,879,999
Nebraska	1,277,750	Porto Rico	1,223,981
Nevada	108,736	Samoa (a)	7,426
New Hampshire	443,467	Total United States (c)	113,309,285
New Jersey	2,981,105		

(a) Enumeration by Governor, 1913.

(b) Police Census, 1916.

(c) Includes 45,123 persons in military and naval service stationed abroad.

RECENT PUBLICATIONS

ELEMENTARY ECONOMIC GEOGRAPHY. By Charles Redway Dryer. 415 pages. The American Book Co., New York. 1916.

This text was written as the result of the demand "for textbooks dealing with commerce and industry." The author has endeavored to make the work more than a commercial geography—"a study of the ways in which different peoples in different regions get a living."

The book is divided into two parts. The first part called "Human Economies and Their Natural Foundations" is an introduction which leads to a better understanding of the more difficult portions which follow. The author discusses the economic relations of seven different primitive peoples. This is followed by several chapters on home economies based on familiar conditions which relate to resources and industries. This first part is concrete and on the whole very good.

The second part is devoted to the "Economic Geography of the United States." The country is divided into the following economic regions:

The Middle West (77 pp.); The Eastern States (64 pp.); The Southern States (45 pp.); The Interior States (41 pp.); The Pacific States (38 pp.); The remaining pages are given over to a brief discussion of outlying possessions, foreign commerce, economic work of the government and a statistical appendix. Much attention is given to the discussion of cities as the author believes that they are the "final and characteristic product of modern economic forces acting under geographic influences." The book is well supplied with illustrations and there is a wealth of splendid material but the second part seems a little heavy for the pupils who probably will use the book most.

F. E. W.

RIDER'S NEW YORK CITY AND VICINITY. By Fremont Rider and assistants. Henry Holt & Co., New York. 1916. Pocket size. 506 pp. $3.10 net.

The book is an American Baedeker for New York City, or rather for the New York Metropolitan District. The author says he has taken the "admirable Baedeker series" for his model. There are seventeen maps in color and floor plans of the five public buildings in which visitors are likely to be most interested. The scope of the book may be gathered from the following larger divisions: Preliminary Information, Entering New York, Downtown, Midtown, Uptown, The Bronx, Brooklyn, Staten Island, the Jersey shore, Newark.

AN INDUSTRIAL GEOGRAPHY OF BRITAIN. By William J. Claxton. Published by George G. Harrap & Co., London. 143 pp. 10d.

The author says of his little book, "Perhaps a better title would have been, 'Natural Gifts to Britain.'" The book is an effort to show the influence of the physical features of Britain upon her industrial development and is intended to accompany the author's Industrial History of Great Britain.

THE WHEAT INDUSTRY. By N. A. Bengtson and Donee Griffith, of the University of Nebraska. The Macmillan Company, New York. 1915. pp. XII+337.

This is the first volume in the Macmillan Industrial Series, edited by Prof. George E. Condra of the University of Nebraska. Professor Bengtson and Miss Griffith have two excellent qualifications for writing the book, namely, abundant first hand knowledge of the subject and the experienced, successful teacher's skill in presentation. The seventeen chapters treat of The Wheat Plant, its Cultivation, Harvesting, Threshing, Transportation and Storage; Marketing, Milling, and Uses of the various products; also of wheat in each of the larger producing countries,—Australia, Argentina, Canada, certain Asiatic countries, and the United States. There are 130 illustrations, including a number of black and white maps. Questions and Exercises of excellence follow each chapter. The book is designed to serve as a reference book or reader in seventh, eighth, or even ninth grade. The plan calls for excursions, the collecting of specimens, and the making of reports by the pupils. The book is not only authoritative, but it is thoroughly interesting. High school teachers of Commercial Geography will find it useful. It is to be hoped that succeeding books in the series will be as good.

PHYSICAL AND INDUSTRIAL GEOGRAPHY OF LANCASTER COUNTY, PA. By H. Justin Roddy, Millersville Normal School. New Era Press, Lancaster, Pa. 1916. 113 pp. 75 cents net.

The first half of the book treats of the physical geography of the county, and the second half of the economic geography. Lancaster County is a part of the most interesting section of Pennsylvania. Through it passed most of the great highways between Philadelphia and the West; Indian trail, colonial road, the great coach and freight road, canal, horse railroad, and the present main line of the Pennsylvania Railroad.

The whole region is full of the types which belong to the borderland of history and geography. The author has presented his material most interestingly, but the half tones and some of the maps are not so good as the book deserves.

SUGGESTIONS FOR LABORATORY WORK AND EQUIPMENT IN PHYSICAL GEOGRAPHY. By F. V. Emerson, Louisiana State University, Baton Rouge. Bulletin of Louisiana State University. Vol. VIII-N. S. No. 9. Oct., 1916.

The little bulletin of 38 pages is designed "to aid teachers of physical geography in preparing laboratory work and equipping the laboratory." Copies of this helpful bulletin may be obtained by addressing Prof. F. V. Emerson, Dept. of Geology, State University, Baton Rouge, La.

WORLD'S PRODUCTION OF COTTON, 1914-15

[From *Commercial America* for Dec.]

(000 omitted)

United States	16984	Brazil	400
India	4186	Persia	150
China	2500	Peru	125
Egypt	1285	Turkey	120
Russia	1126	Mexico	75

COTTON PRODUCTION IN UNITED STATES

	1914. Bales	1915. Bales
Texas	4,592,112	3,227,480
Georgia	2,718,037	1,908,673
Alabama	1,751,375	1,020,839
South Carolina	1,533,810	1,133,919
Oklahoma	1,262,176	639,626
Mississippi	1,245,535	953,965
Arkansas	1,016,170	816,002
North Carolina	930,631	699,494
Louisiana	449,458	341,063
Tennessee	383,517	303,420
Missouri	81,752	47,999
Florida	81,255	47,831
Virginia	25,222	15,809
All other states	63,880	35,700
Total	16,134,930	11,191,820

The estimated production in 1916 will be 11,637,000 bales.

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The letters M. N. C. on the address label on the wrapper of your magazine mean "Member of National Council of Geography Teachers." If you are a member, please see if these letters appear with your name on the address label. If they do not, drop a card to the Journal of Geography, Appleton, Wis., asking to have these letters added.

Editor.

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the monthly magazine of the American Geographical Society, is a periodical of unique interest to teachers of geography. The special articles, of which four or five appear in each issue, are written by authorities in the various branches of geographical science. The illustrations are of the highest order, and the maps, hand-drawn and occasionally in color, are unsurpassed. Some of the articles that will appear in 1917 are:

A Vegetation Map of the United States
By Forrest Shreve, Desert Botanical Laboratory

A Pilgrimage in Northeastern Africa
By Prof. William H. Hobbs, University of Michigan

The Eskimos of Northern Canada
By Diamond Jenness, Ethnologist of the Stefansson Arctic Expedition

Short items of topical interest constitute a monthly geographical record. Concise in form and of current importance, they are directly useful in the classroom. The section of the *Review* entitled "Geographical Publications" is indispensable to those wishing to keep pace with geographical progress. It is an annotated bibliography arranged under a regional classification. It includes practically every new book and article of direct or indirect geographical bearing.

The yearly subscription for the *Review* is $5.00; single copies are 50 cents each.

The American Geographical Society has also inaugurated a series of books, of which at least one will be published annually. The first of the series is "The Andes of Southern Peru," by Dr. Isaiah Bowman, Director of the Society. The second, now in press, is "The Frontiers of Language and Nationality in Europe," by Leon Dominian.

The magazine and the annual monograph free of charge are among the privileges enjoyed by Fellows of the Society. Teachers and others interested in geographical affairs are invited to become Fellows. The annual dues are $10. Full particulars regarding Fellowship will be sent on request.

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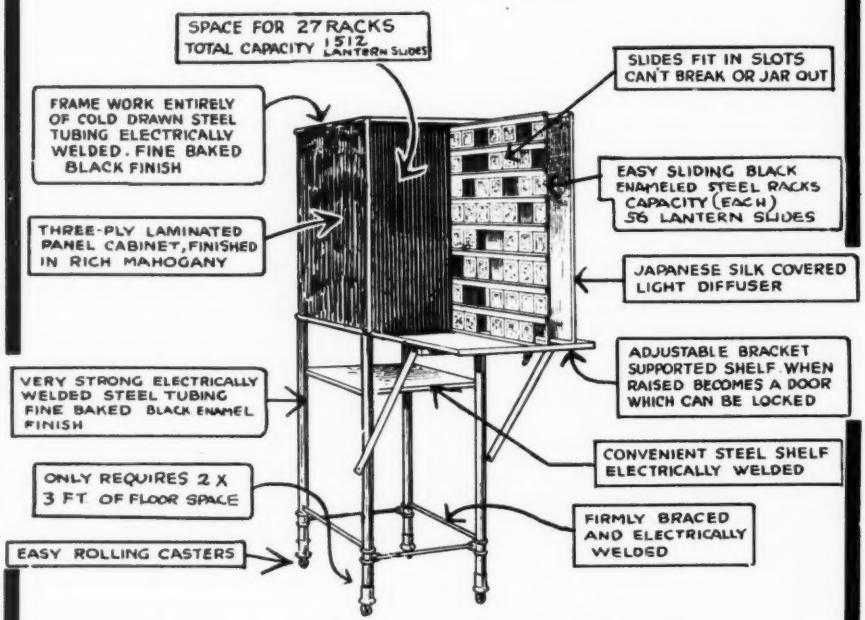
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South America: A Geographic Reader. Isaiah Bowman,
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